

phia, Dana of New York, and others have advocated its use. The former encouraged the author to use it freely in suitable cases and under the right conditions, which is that of rest, preferably in bed, and with due regard to intestinal activity. This has been combined with quinin by the author in selected cases with good results.

The recent literature contains but meagre data concerning its manifest uses in trifacial neuralgia. Therefore it seems advisable to call attention to it at this time. Also, it seemed wise, in the beginning of this paper, to emphasize the fact that all cases of headache or trifacial irritation are not to be treated by any routine method; and that in selected cases (viz: true trifacial neuralgia) is strychnin in intensive dosage a rational therapeutic agent.

### PELLAGRA.

By ANSTRUTHER DAVIDSON, M. D., Los Angeles.

I do not intend to enter into any discussion of the theories of causation, pathology or prevalence of Pellagra. These things have been already discussed and recorded in our journals and text books, by abler men of much experience. I wish but to record this case and add a mite of information on the probable causes we meet in California.

M. G., a carpenter, aged 74, complained of diarrhea of five or six years' duration, sometimes not very troublesome but always in some degree present. For the last few months the bowels moved four or five times a day and once or twice at night, the consequent weakness was his only complaint. Last year his hands, he said, "cracked, scaled and bled," once in the spring and again in the autumn. This year they had already scaled once (July, 1912). His hands presented a dark reddish appearance with a slightly raised well defined cuff border, the back of the fingers to the first phalanx was scaling in large plaques. The center of the dorsum showed paler, semicircular tissue, as if the scaling had been deeper in that locality. Knee reflex exaggerated, but no other symptoms referable to the nervous system, except marked irritability of temper. I prescribed for his diarrhea and saw him twice in the next ten days. As he did not appear the following week it was found, on inquiry, he had become suddenly much worse and died. He was born in the East but had lived in Los Angeles for about ten years. Unmarried, he lived alone, cooking his own meals, of which cornmeal mush was a daily feature. This case is undoubtedly one of pellagra and one of the comparatively few discovered in Southern California.

This disease has now been found in nearly all the states of the Union and in most European countries. The cause of pellagra has been attributed to the eating of diseased maize and lately by Sambon to infection by a *Simulium*.

As the disease in many respects resembles a toxic erythema in its appearance, it is not at all improbable that it is a cutaneous reaction from either a special food, or some special metabolic disturbance that is associated with some toxemia. This man, as we see, ate largely of corn, and corn even when not diseased, if much used, is prone to cause cutaneous irritation. The popular idea that corn is heating to the skin is correct, as its use in sufferers from urticaria and acne is prone to increase the inflammatory appearance. Oatmeal has the same tendency. Corn is not much used in the dietary of the people of California and if the cause of pellagra lies therein we may not expect many in this state. If the *Simulidae* are the source of infection we are well supplied

with probable sources. California has at least six species of the genus, viz:

- S. meridionale*, Riley. Fresno.
- S. venustum*, Say. Fresno.
- S. bracteatum*, Coq. Los Angeles Co.
- S. pictipes*, Hagen. Los Angeles Co.
- S. vittatum*, Zett. Los Angeles Co.
- S. virgatum*, Coq. Los Angeles Co.

I have no acquaintance with the northern part of the state, but I presume the species are even more abundant there than in the south, as the conditions as regards moisture are more favorable to the propagation of the insects.

The most common species here, *S. bracteatum*, is a small dark fly popularly classed among the gnats as it bites somewhat severely. It is to be found around horses in all the mountain camps or near streams up to 8000 feet altitude in Southern California. They suck the blood from the flanks and inside of the ears of horses and donkeys. The latter especially suffer. Towards the end of the summer the inside of the ears are thickly spotted with blood-stained crusts where the insects have repeatedly fed. If all the *Simulidae* are capable of transmitting pellagra the disease ought to be fairly common, but in this genus, as in the *Culicidae*, it may be that only certain species are capable of conveying the infection. *Simulium reptans*, the species that Sambon seems to think is the communicator of pellagra, has not been found in California so far as I know. Much work must be undertaken before the true cause can be discovered, and it is possible that the *Simulidae* may be but the intermediate host in conveying the infection from horse or donkey to man.

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**DO NOT FORGET  
TO SEND US YOUR  
CHANGE OF ADDRESS  
PROMPTLY.**

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### ORTHOPEDIC TREATMENT OF SPINAL POLIOMYELITIS.

By JAMES T. WATKINS, M. D., San Francisco.

The present paper was delivered in abstract before the California State Medical Society at Del Monte in April, 1912. The time limit set made it necessary to confine its scope to a consideration only of the principles governing the operative side of treatment. Here in the full text other, and if anything more important features of treatment are also given consideration. Occasional repetitions appear in the text where facts were deemed sufficiently important to warrant reiteration.

(Continued from Page 377, September Journal, 1913.)

"1. Do you consider tendon transplantation in properly selected cases a useful and satisfactory operation?"

"The replies were as follows: (40 answers.)

Yes ..... 34  
 Yes, qualified ..... 2  
 Moderate ..... 3  
 In some ..... 1

"The opinion is thus definitely expressed that it is a satisfactory and useful operation in suitably selected cases.

"2. Are your end results satisfactory?"

"The replies were as follows: (42 answers.)

Yes ..... 13  
 Yes (in carefully selected cases) ..... 7  
 Moderately ..... 7  
 No ..... 7  
 Sometimes relatively or partially ..... 8

"3. Do you prefer tendon-to-tendon suture or periosteal implantation?"

"The replies were as follows: (38 replies.)

Periosteal implantation ..... 28  
 Both methods used ..... 5  
 Tendon-to-tendon suture ..... 5

"4. What, in your experience, are the most frequent causes of failure to obtain good results?"

"(As most circulars contained several heads to this reply the total is in excess of the number replying.) (70 answers.)

Improper selection of poor operative plan ..... 20  
 Insufficient after-care ..... 17  
 Failure to overcorrect deformity ..... 7  
 Infection ..... 7  
 Insufficient tension ..... 7  
 Poor technic ..... 3  
 Substitution of weak muscles ..... 2  
 Operation on too young children ..... 3  
 Tendons too short or too poor attachment ..... 3  
 Stretching of tendon, tendon too freely stripped, use of catgut, failure to tunnel properly, pull not straight ..... 1 each

"5. Are your more recent operations more satisfactory than your earlier ones were?" (37 answers.)

Yes ..... 31  
 No ..... 5  
 The same ..... 1

"From comments made in the replies it seems that this improvement is due to two causes: first, the more careful selection of cases, leading to fewer operations; and, second, improved operative technic and better after-treatment.

"Causes of Failure—The three common causes of failure after tendon transfer may then be formulated as follows, named in the order of their frequency:

"1. Selection of unsuitable cases for operation and insufficient study and analysis beforehand to permit a proper operative plan.

"2. Insufficient or improper after-treatment.

"3. Failure to over-correct deformity before operation for tendon transfer."

Finally, on the nineteenth day of August, of the present year, Lange, in a personal letter, writes me of his method: "During the past ten years—since you were with me—I have learned much additional, and my satisfaction with the results has increased from year to year." With this letter, Lange sent me his latest publications, the last of which appeared in April of this year.

I place this evidence before you to show you that the value of the operation, or group of operations, the principles and technic of which I shall presently detail to you, is no longer a subject for theoretical speculation. They have been tried by many men in many parts of the world. Those men who were specialists in orthopedic surgery have, in an overwhelming majority of instances,

succeeded in relieving their patients by this method and where they have failed, have recorded the same criticism of the causes of failure. They were mistakes of judgment, mistakes of technic, they were *not* mistakes of the principles involved.

As you know, walking over uneven surfaces necessitates four essential motions of the foot on the leg: up and down motions and motions from side to side. Two or more muscles participate in each of these motions, and each muscle has at least two actions. For example, the extensor of the great toe is also a dorsal flexor and supinator of the foot upon the leg.

The operative treatment of defects consequent upon infantile paralysis presents three phases: first, overcorrection of whatever deformity may be present; second, re-adjustment of the muscular balance; third (this being consequent upon the others though not strictly operative), education of transposed muscles to do the new work required of them.

With the first phase of operative treatment I shall not detain you. We stretch or cut fasciae, tendons, muscles, and ligaments which oppose our reversing the distortion present and overcorrecting it. For example: if the foot is in a posture of equino-varus—what we ordinarily call the "club-foot position"—it should be remodeled into the reverse position of calcaneo-valgus, that is of extreme flatfoot.

Occasionally osteoplastic or bone-cutting operations have to be done. They are, however, to be deprecated.

As has already been said, the method of Lange aims to free the tendon of a healthy muscle from its bony attachment and to re-insert it at that point on the skeleton of the foot where it will best do the work that had been done by the paralyzed muscle prior to the infection. It is not at all essential, however, that the transplanted tendon should have the same insertion as the paralyzed one. For example: no muscle inserts into the upper surface of the cuboid bone: but in those cases where there has occurred a paralysis of the peroneus tertius, or of the long extensor of the toes, or of both, with subsequent dropping of the outer side and front of the foot, the cuboid is the point of selection for the insertion of the muscle to be substituted for the paralyzed one.

In selecting a muscle to replace one that has become paralyzed we look for that one which is anatomically and functionally nearest to the injured muscle. For example, where there is a paralysis of the tibialis anticus, if the extensor of the great toe is found to be healthy, we transfer its insertion to the site of the insertion of the tibialis anticus.

To make the four motions of the foot on the leg, five points on the foot must be provided with active muscles; and these muscles must be able to contract independently of one another. After infantile paralysis, it is usually necessary to sacrifice less important actions, such as those of the toes, in order to obtain enough muscles to supply to these five points. The up and down motions, dorsal and plantar flexion, are more important than the side to side motions. To make the former, a muscle

capable of independent contraction must be attached behind the leg to the site of the insertion of the calf group into the heel, and one each to the outer and to the inner side of the dorsum of the foot in front of the leg.

For adduction, or turning the forefoot inward, a fourth muscle must follow a course approximating that of the *tibialis posticus*. Like the latter, it must insert at the inner side of the foot, preferably into the internal cuneiform bone. Abduction, or turning outward of the fore-foot, can best be obtained by attaching an independent muscle to the base of the fifth metatarsal bone or its vicinity; a muscle whose course corresponds with that of the *proneus brevis*.

While it is greatly to be desired that the transferred muscle be anatomically and functionally related to the muscle it is required to replace, in many instances, especially where the disease has caused extensive paralyses, this cannot be accomplished. The transferred muscle must then be brought from a distance. Frequently the tendon of such a muscle is too short to reach the desired insertion. In such a case we are constrained to make up the deficit by prolonging the tendon with silk. Without the frequent and assured use of these *silk tendons*, the successful treatment, by the new method, of deformities consequent upon poliomyelitis must have been limited to a relatively small group of cases. I feel it incumbent upon me therefore to describe these silk tendons more in detail.

It has been the experience of countless surgeons that freshly boiled silk heals kindly within the tissues. It has also been the misfortune of many of us to see silk, which had long been healed in, become the seat of a localized infection; an infection which ceased only with the removal of the silk. To prevent this late infection of silk which had been healed in, Kocher advised a preliminary boiling of the silk in corrosive sublimate. This maneuver successfully combats the possibility of late infection, but has one inherent disadvantage. Bichloride of mercury is such an irritant to the tissues that it can set up a reaction so severe as occasionally to call for the maintenance for some time of post-operative wound drainage. This, of course, opens up a possible path for the ingress of bacteria. To obviate this drawback I boil the bichloride silk in paraffin. This prevents immediate contact between the sublimate and the lately injured tissues.

To do this I proceed as follows: Various sizes of silk, cut in one meter lengths, are loosely rolled upon gauze sponges. They are then boiled for half an hour in corrosive sublimate, 1 to 1000. They are next wrapped in a sterile towel and dried on the radiator for forty-eight hours. If any moisture remains in the silk the preparation will be a failure. Paraffin, with a melting point of 120 F. is next dissolved in a vessel on the hot-water-bath and the dry sterile bichloride silk boiled in it for one hour. Without removing the silk, a cover is put on the paraffin jar. In this way the silk is kept sterile and hermetically sealed until it is needed: at the time of the operation the paraffin is again dissolved on the water bath. The silk can

then be withdrawn by means of a long sterile forceps from the containing jar in desired sizes and amounts. In this way I obtain a silk which is at once antiseptic and bland to the tissues. Whatever silk comes out of the jar stays out. That was my reason for cutting it in meter lengths. It assures the maintenance of the asepsis of my paraffin. The method has the one drawback that as a result of the boiling in sublimate the silk loses approximately one-third of its tensile strength.

To attach the silk to the tendon I employ the procedure advocated by Lange. In order that the tendon may not be split, the silk is threaded upon a round needle. Holding the tendon tense, the needle, threaded either single or double, is carried in a basting stitch, which does not wholly pierce the tendon and its sheath, up one side for an inch or more, then across and down the other side and out again. This leaves the tendon which is to be transferred with either two or four silk strands emerging from it at a point opposite to where it is to be severed. The tendon is now cut across and the distal stump attached ascendingly by a similar stitch to the tendon of the nearest healthy muscle. The proximal stump or its silk prolongation, is carried subcutaneously over to be attached to that bony point where it will be most advantageously placed for the performance of the function of its paralyzed neighbor.

It is the endeavor of most operators to bring the fleshy and tendinous portions of the transferred muscle into one and the same straight line. If, in so doing, it cannot be brought to exert the same pull as the muscle it was meant to replace, this is regarded as one of the limitations of the operation. Under this plan of action, if, for example, a *peroneus brevis* has to be employed to replace a paralyzed *tibialis anticus*, in a case of paralytic equino valgus, it is carried obliquely forward and downward across the front of leg and dorsum of foot to insert into scaphoid. Such a transferred muscle will correct the equinus or drop-foot but still pull the foot over into valgus. I, at one time, was accustomed to make the mistake of compelling muscle belly and tendon to lie in as nearly straight a line as possible regardless of other considerations. It was based upon a misconception of the mechanics of muscle action. As a matter of fact, as Fischer has conclusively shown, if a muscle is caused by bony projections or by ligaments to deviate from a straight course, its function is always determined by the direction and course of that portion of it which stretches unhindered from one point to another. That is, in the example just employed, the belly of the *proneus brevis* can be carried at an angle across the front of the leg, and so long as its tendinous portion follows the course of the tendinous portion of the *tibialis anticus*, it will perform the function of that muscle.

While we need not hesitate to so place the upper portion of the transferred muscle as to enable the lower or tendinous portion to follow the course of the paralyzed tendon, the manner of making the canal in which it must lie is of prime importance.

Adhesions during the post operative six weeks fixation period are unavoidable. Therefore, if the muscle belly is going to be able to contract it is necessary that these adhesions should be to soft movable tissue. Wherever a muscle lies directly on a bone or a dense fascia, and adhesions have taken place between them, that muscle can no longer contract in response to nervous stimulus. Therefore, in tunneling a canal for the new location of the muscle belly, the greatest care should be exercised to keep close under the skin in the subcutaneous fat and areolar tissue. I think that the failure to recognize the importance of this feature of the technic explains no small proportion of the poor results hinted at by some of our colleagues.

Of very great importance is the manner of the attachment of the tendon, or its silk prolongation, to the periosteum, i. e., the new insertion. You will recall, that, in basting the tendon with silk, a round needle was used so as not to split the tendon. The silk is now threaded on a very strong curved needle, with three cutting edges. Using all the force possible without breaking it, the needle is forced through the periosteum at the desired point for the insertion of the transplanted tendon, and, if possible, through the superficial layers of cartilage. Two such basting stitches are sufficient for each silk thread. The foot is then held in maximum overcorrection while the silk threads are drawn tight enough to cause a moderate degree of tension in this position. They are then tied and the knot squeezed flat to prevent its forming a decubitus later. Lovett places his knots beneath the periosteum.

The paralyzed tendon is next shortened. If this does nothing else it will, for a time, relieve the new tendon of part of the strain thrown upon it. It should have been said earlier that skin incisions must be free and so placed as not to lie over the silk tendon, nor its insertion, but sufficiently removed to one side of it, so that with the closure of the wound, the silk will be completely covered in.

The wounds are closed with horse hair and silk-worm gut, the stitches painted with iodine, and a flat pad of sterile gauze applied. Sterile cotton wadding and plaster of paris complete the operation. From the moment that the ends of the silk tendons are drawn tight and tied after they have emerged from the periosteum, till the plaster of paris has hardened, an assistant holds the foot in a position of extreme overcorrection. This relaxes the tension on the new tendon, while it is healing in.

*After-Treatment:* It would be an error, fatal to the successful outcome of the case, to assume that treatment ceased with the healing of the operation wound. A large part of the partial or negative results obtained by some operators must be attributed to a failure to recognize this fact. The writer's procedure is as follows: During the first few days the toes are watched for evidences of vascular disturbances. Some time after the fourteenth day the plaster dressing is removed,

stitches taken out and a plaster of paris negative of the limb taken to be used in making the apparatus to be worn later. The limb is then put back into plaster of paris in the over-corrected position.

About the end of the sixth week, the splint is removed and the patient exercised several times daily in the use of his muscles in their new relations. He is, however, *not allowed out of bed. Under no pretext, with or without splints or braces, is the weight of the body permitted to be borne by feet which have been subjected to operation before the end of the twelfth week.* The writer is in entire agreement with Lange when he says:

"The first two months *after* the removal of the plaster of paris are *much* more critical than the interval during which plaster of paris is worn."

The reason for this is that only after the removal of the cast does true tendon tissue, or, as is more probably the case, scar tissue, under the influence of functional use, begin to surround and embed the silk implantations. At the same time the transposed muscle begins to acquire the strength necessary to the prevention of a relapse. The technic of the exercise treatment, which again finds its application here, has already been described.

For at least *a year* after the removal of the cast protective apparatus must be worn during the day and in some cases at night as well.

I have been asked when is the best time to operate. The reply is one year after the inauguration and systematic protraction of careful, thorough, conservative treatment. As regards the best age to operate: my oldest patient was forty-four years old. On the other hand I do not care to operate upon children who are younger than four years. Their tendons are too delicate and frail.

I cannot close this paper without discussing at some length an operative procedure which occupies an important place in the surgery of poliomyelitis. I refer to the arthrodesis of Albert. An arthrodesis is really a conservative resection of the contiguous ends of bones which make a joint. Its purpose is to destroy motion in a joint by creating an artificial ankylosis. In the group of cases under consideration it finds its greatest usefulness in the treatment of flail joints. The latter occur, when, as the result of a severe invasion, all or nearly all, the muscles about a joint are permanently paralyzed.

Motion which cannot be controlled is certain to lead to the development of a deformity. Therefore it must be limited by check ligaments of silk or got rid of by arthrodesis. In the writer's judgment the silk ligaments are to be preferred for children less than ten years of age. Later than this arthrodesis is the operation of selection.

In an attempt to determine the estimation in which arthrodesis was held by the profession, or rather by those members of it best fitted to form an opinion, Mr. Robert Jones propounded to them a series of eight searching questions. Eighty surgeons replied in detail.

It is deemed worth while to epitomize Mr. Jones' report.

1. "Will you state your opinion of the value of arthrodesis?"

Sixty-seven of the eighty surgeons were in favor of the operation, a considerable number of them holding, however, that it was of special value in selected cases.

2. "At what age is it best the operation should be performed?"

Only fifty-one of the eighty answers received were capable of classification. Of these fifty-one, however, forty-five do not operate under five years of age, and only six do. In other words seven and a half times as many operators preferred to wait till after the fifth year as those who should operate at an earlier date. There was a further majority of two to one who favored deferring the operation till after the eighth year.

3. "Do you take any special precautions to bring about bony union?"

Answers to this question in the proportion of their frequency were:

1. Thorough and careful removal of the cartilage. 2. Good coaptation of the bony surfaces. 3. Long immobilization. 4. Artificial adjuncts: screws, pegs, nails, etc. 5. Chemical adjuncts: phenol, tincture iodine. 6. Special technic.

4. "What joints are most favorable for operation?"

Ankle, 39.

Shoulder, 4.

Mediotarsal, 2.

Sub astragaloid, 1.

Knee, 25.

Hip, 2.

Elbow, 1.

Answer vague, 6.

It is manifest, then, that the large majority favor the ankle with knee second and the rest hardly deserving of consideration.

5. "Is the operation useful in combination with tendon transplantation and teno-plasty?"

Forty-seven surgeons replied in the affirmative. There was not enough unanimity in the other replies received to make deductions from them possible.

6. "Have you met with deformity connected with irregular growth as an ultimate result of the operation?"

Seventeen surgeons replied in the affirmative and attributed their imperfect results to the operation being performed at too early an age, or to bad technic or to the fact that the joint was not kept immobilized for a sufficiently long time.

7. "Have you experienced failures, and if so can you tell why?"

Failures are reported by fifty surgeons and attributed variously to nine causes.

1. Operation performed at too early an age.

2. Cartilage not thoroughly removed.

3. Insufficient immobilization.

4. Lack of vitality, especially in paralyzed limbs.

5. Stretching of fibrous unions.

6. Faulty technic.

7. Rotation of sub-astragaloid joint in case of operations on the ankle.

8. Omission of chemical irritants.

9. Parental neglect.

8. "Can you offer any suggestions in technic

whereby operative procedures may be improved?"

The replies to this question were too numerous and diverse to merit repetition here except in groups.

1. Special operations—of these there were four.

2. Incisions—these were very various.

3. Special technic—these were grouped under twelve heads during operations.

4. Special technic—considered under four headings after the operation.

"The value of tabulated answers to questions is lessened when we realize that some of the correspondents are men of wide experience of the operation, and others who have seldom performed it.

"Those surgeons of large experience speak with no uncertain approbation of its value, and the majority of those who refer to the two operations think arthrodesis of more assured service than teno-plasty or tendon transplantation. Surgeons who speak disapprovingly of the operation have usually operated on the very young or have given the procedure only a limited trial, or have been adversely influenced by early failures."

Of arthrodesis it may be said that the operation should not be performed before the eighth year and that from the tenth year on is the time of preference.

It should be performed only where all or almost all the muscles about a flail joint are paralyzed—that is, a joint on which a tendon transference can not be expected to succeed. It should be performed with the least possible sacrifice of bone. As applied to the lower limb it is expected to render a flail joint strong enough to bear body weight without artificial aids. From what has gone before it is evident that the ankle is the joint most suitable for arthrodesis; next to it comes the knee.

It is well to fix the transverse tarsal joint at the same time with the ankle joint.

Next to a proper age, complete removal of cartilage, good adaptation and long immobilization are requisite to firm union. And conversely, the principal causes of failure may be set down in their order of frequency as too early an age, incomplete removal of cartilage, poor apposition and too short fixation.

The type of case suitable for operation. In determining this it is necessary to bear in mind that paralysis of the nerve centers is not nearly so extreme in cases of infantile paralysis as the groups of muscles affected would lead one to suppose. According to Mr. Jones it is of the utmost importance that the ankle joint should not be fixed until we know "(a) That the paralysis is complete, and depends on the destruction and not on the temporary disorganization of motor cells.

"(b) That at least two years have elapsed in the case of muscles suspected to be completely paralyzed.

"(c) That apparently paralyzed but really overstretched muscles have first been submitted to appropriate treatment."

#### CONCLUSIONS.

(a) The operation of arthrodesis is of the most value at the ankle.

(b) It should preferably not be performed in children under ten.

(c) The surgeon must satisfy himself before operation is advised that the muscles are hopelessly paralyzed.

(d) The preliminary preparation of the foot by wrench and tenotome must correct all deformity.

(e) The operation must be so planned that the bones be in correct apposition and the deformity is fully corrected.

(f) At the ankle wedges of bone should be taken from the astragalus, never from the tibia.

(g) At the elbow Mr. Jones prefers removing a large diamond-shaped piece of skin to arthrodesis.

(h) Splints should be applied and retained till union is pronounced to be complete. The joint should then be guarded by appliances till the surgeon is satisfied that it is strong enough to bear body weight without yielding.

As a substitute for arthrodesis Barton and Plummer have employed intra-articular silk ligaments, and report themselves to be much gratified with their results. These writers pass strong strands of paraffined silk through a tunnel made first in the end of one bone then through the joint, next through a tunnel in the end of the second bone, and back again through the joint to the point of starting. The ends of silk are then drawn taut and tied.

The reason for carrying the silk through the joint is to set up a copious exudate which, by organizing later, will help to limit the motion in that joint.

It seems probable that this operation, or rather operative principle, will in time find a definite though perhaps limited field of usefulness in the surgery of infantile paralysis.

Mr. Robert Jones has laid stress upon the fact that the central lesion in spinal poliomyelitis is by no means so extensive as the muscular disability would lead one to suppose. He has further emphasized that where paralyzes of certain groups of muscles are associated with the persistence of a distortion which causes them to be overstretched, it is proper to maintain the foot for a long time in that posture of overcorrection which will most relax these muscles, in the hope that thereby they will be enabled to regain their ability to contract. To obtain this result, however, the overcorrection should be maintained for months perhaps without once permitting the limb to assume a posture which would again cause stretching of the affected muscles.

To make sure that the desired posture will be maintained, Mr. Jones excises a diamond-shaped fold of the loose skin over the overcorrected joint and, after shortening the tendons, sutures its edges together. When union has taken place, the changes of an immediate or momentary relaxation of the posture will be nil, and in a few months it will be definitely known whether or not the patient presents a muscular defect consequent upon a vicious posture or a central nervous lesion.

If the first should be true, massage and exercises, augmented perhaps by some form of tendon transference, are indicated; if the latter, one knows that when the age limits have been passed an arthrodesis will be needed.

A vast deal has been written of late years on the treatment of spinal poliomyelitis. In the preparation of this paper the writer has added to his own experience gleanings from some sixty-odd previous publications by men distinguished in this special field of endeavor. The most important of these papers he has specifically mentioned. Before closing he would like to bear witness to the benefit received from the repeated perusal of a paper entitled "A Case of Infantile Paralysis," by Professor and Mrs. Earl Barnes, late of Stanford University. A record of heroic achievement and of a deservedly great reward.

## SOCIETY REPORT

### CALIFORNIA ACADEMY OF MEDICINE.

On the evening of August 25th a meeting of the California Academy of Medicine was held, at which the following program was given:

1. Demonstration of an easily constructed case for the display of X-ray plates and lantern slides.

Report of a case of pneumonia, complicated by tympanitis; operation and recovery. T. C. McCleave.

2. A Case of Rhinoscleroma. H. E. Alderson. Bacteriologic findings in above case. E. C. Dickson. Discussed by L. S. Schmitt and L. S. Mace.

3. The Emergency Hospital at the Panama-Pacific Exposition. R. M. Woodward.

## BOOK REVIEWS

**Golden Rules of Gynecology.** By George B. Norberg, M. D., Professor of Diseases of Women and Clinical Gynecology, University Medical College, Kansas City, Mo.; Gynecologist to Kansas City General Hospital, Fellow and Ex-President Kansas City Academy of Medicine. 250 pages, 8 vo. Price, \$2.25. C. V. Mosby Co., St. Louis.

Today the effort is to become proficient in whatever one does, that is, it is a day of specialty. So this small volume hurriedly going through an extensive subject in order to supply a "busy practitioner" with a short-cut to gynecology, finds less room on the book shelf today than it did formerly.

C. B. M.

**Cardio-vascular Diseases.** By Thomas E. Satterthwaite, A. B., M. D., LL. D., Sc. D. Lemski & Buechner, New York, 1913.

In this book the author presents a revised collection of monographs written since 1905 as successive addenda to his "Diseases of the Heart and Aorta," also published by him in medical journals. The newer work on the anatomy and physiology is detailed. Various instruments of precision employed in the study of cardiovascular diseases are described, with their practical application. Several chapters deal with the purely clinical side of cardiology, with especial reference to treatment. There are many illustrations and the author's easy style, with the book's good typography make the reading pleasant.

R. B.